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(54) **Waterproof, non-slip, perspirable sole.**

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## Description

The present invention concerns an important improvement in shoe soles for footwear and thus in footwear.

More particularly, the present invention refers to a sole for footwear in general, which is waterproof, flexible, non-slip and perspirable, which sole is formed of a rubber or like slab comprising a plurality of holes. It also concerns footwear, especially children shoes, equipped with said sole.

Such a sole is known from US—A—3383782.

The qualities and defects of the various types of soles with which shoes are now equipped are well known both to the specialists and to the users: soles made of leather — which is a highly perspirable natural material — are healthy and pleasant when normally worn in favourable weather conditions, but when they are worn under rain or in the snow, they easily let through humidity or even water, furthermore, they are quite slippery on wet ground. Rubber soles are waterproof even in the most unfavourable weather conditions and they have, especially if suitably shaped, a remarkable non-slip effect, but they do not allow perspiration and are hence scarcely healthy for normal use under cover or in good weather.

Attempts have been made to replace leather by various synthetic products which, though aiming at preventing the drawbacks thereof, have so far had no particular success. The problem is therefore still unsolved and it is particularly felt in the field of leisure footwear and children footwear, and especially in this last case the requirement for a shoe, being at the same time healthy, non-slippery and waterproof, is extremely high.

In this field, attempts have already been made to associate leather and rubber for making soles apt to solve the above mentioned problems, but with scarce success: for instance, there are known to be shoes for children, in which the leather sole is covered over its whole central surface, or over a wide portion of its periphery, with suitably shaped rubber (possibly provided with suckers) against slipping. However, these types of soles do not solve the problem because, though they have good properties of impermeability and non-slipperiness, they are not apt to guarantee a good perspiration, as the surface covered with rubber prevails over the mere leather surface, or is anyhow ill-distributed. On the other hand, in the case of children footwear, the presence of leather gives to the sole a higher rigidity than would be desirable.

To obtain a good perspiration, without forgoing the other advantages provided by rubber, the afore-mentioned US—A—3383782 has also proposed rubber soles comprising a plurality of holes. These are however only suited for use in the house and in a dry place (they can be used, for instance, for slippers), since the holes are open, so that such soles are by no means apt to guarantee impermeability to the foot on wet ground or in case of rain.

The present invention now solves completely the aforementioned problems by providing a waterproof, non-slip, highly perspirable and very flexible sole, which is suitable for any type of footwear, but which is considered particularly satisfactory for use in sports and leisure footwear and in children footwear.

This sole is essentially characterized in that the said holes are closed by small leather inserts on the side intended to face the upper of the footwear.

Said inserts may be glued and/or fixed into the holes of the rubber slab, which holes are provided with a suitable widening adjacent to the side of the slab intended to face the upper of the footwear.

The invention also concerns footwear, especially leisure footwear or children's shoe, equipped with a sole as defined hereabove.

Preferably it concerns a shoe for children, equipped with said sole and in which, furthermore, the upper is in one piece with an oblique side seam and it comprises opposite slits along the fastening edges.

The invention is now described in further detail, by mere way of example, with reference to a preferred embodiment thereof, illustrated by the accompanying drawing, in which:

Fig. 1 is an external view of the sole according to the invention;

Fig. 2 is a cross-section view through the sole of Figure 1, along the line II—II of said figure; and

Fig. 3 is a general view of a shoe for children, according to the invention.

With reference to the drawing, the sole according to the invention is formed of a rubber slab 1, suitably profiled on its contour and having a thickness according to the conventional technique, said slab 1 comprising a plurality of holes 2 (six in the embodiment shown).

As can be seen from Figure 2, the holes 2 become wider at 3 on the innermost side 1a of the slab 1 forming the sole (or, more precisely, on the sole side inwardly facing the shoe onto which the sole itself has to be mounted, Figure 2 showing also the cork sole 4 and part of the upper 5 of the shoe). The holes 2 are shown as cylindrical holes and the widenings 3 thereof are square-shaped in the embodiment of the accompanying drawing, but evidently the shapes can vary according to the requirements or to the taste of the designer.

According to the invention, the holes 2 are closed by leather inserts 6, of a shape complementary to that of the widening 3 of said holes (whereby, in the drawing, they are square-shaped), said inserts being glued and/or fixed into the holes 2, in correspondence of their widening 3. The progress recently achieved in connection with the working of footwear materials, as well as in the field of adhesives, guarantees the most efficient, durable and perfectly sealed connection between the inserts 6 and the sole 1, without possibility of inconveniences of any kind arising in the use of footwear equipped with the heretofore described and illustrated sole.

It can be easily understood that this sole possesses the features of non-slipperiness, flexibility and impermeability, of the rubber soles, since the shoe equipped with this sole touches the ground only and exclusively with the rubber slab forming the sole, and because the presence of the holes 2 and leather inserts 6 does not give any rigidity to said slab, while normally the leather inserts 6 (sealed into the holes 2) do not get wet, but at the most dampened during use, even in bad weather, owing to their placement well inside the holes 2 of the rubber slab 1. On the other hand, the sole also provides an excellent perspiration, owing to the rational and widespread distribution of the holes 2 with the leather inserts 6, through which the foot wearing the shoe equipped with the sole of the invention can easily breathe.

The sole according to the invention thus lends itself very satisfactorily for sports or leisure footwear, and especially for children shoes.

In the case of children shoes, some manufacturing details of the shoe as shown in Figure 3, combine perfectly with the characteristics of the heretofore described waterproof, flexible, non-slip and perspirable sole. As seen, this figure shows a shoe for children which, as well as being equipped with the sole of Figures 1 and 2, is formed with an upper 5 in one piece (of course, except for the tongue in correspondence of the fastening, which is applied by sewing), sewn obliquely on the side at 7 (so as to guarantee the highest comfort to its wearer), and with a pair of opposite slits 8 obtained on the edges 9 of the shoe fastening (said slits providing an easy and comfortable shoe flexure, in cooperation with the high flexibility of the sole).

#### Claims

1. Waterproof, flexible, non-slip and perspirable sole for footwear, which sole is formed of a rubber or like slab (1) comprising a plurality of holes (2), characterized in that the said holes are closed by small leather inserts (6) on the side intended to face the upper (5) of the footwear.

2. A sole as in claim 1, wherein said inserts (6) may be glued and/or fixed into the holes of the rubber slab, which holes (2) are provided with a suitable widening (3) adjacent to the side of the slab (1) intended to face the upper (5) of the footwear.

3. Footwear, especially leisure footwear or children's shoe, equipped with a sole as claimed in claim 1 or 2.

4. Children's shoe as in claim 3, wherein the upper (5) is in one piece with an oblique side seam (7) and it comprises opposite slits (8) along the shoe fastening edges (9).

#### Patentansprüche

1. Wasserfeste, flexible, rutschfeste und ausdunstungsfähige Sohle für Schuhwerk, die aus einer mit einer Vielzahl von Löchern (2) versehene Scheibe (1) aus Gummi oder dgl. besteht, dadurch gekennzeichnet, daß die Löcher (2) auf der Seite, die nach oben weisen soll, durch kleine Ledereinsätze (6) geschlossen sind.

2. Sohle nach Anspruch 1, wobei die Einsätze (6) in die Gummischeibe eingeklebt oder in dieser befestigt sind, und benachbart der Seite der Scheibe, die nach oben weisen soll, mit einer geeigneten Erweiterung (3) versehen sind.

3. Schuhwerk, insbesondere Freizeit-Schuhwerk oder Kinderschuhe, versehen mit einer Sohle nach Anspruch 1 oder Anspruch 2.

4. Kinderschuh nach Anspruch 3, wobei das Oberteil (5) einstückig mit einem geneigten Seitensaum (7) ist und gegenüberliegende Schlitz (8) entlang der Befestigungskanten (9) des Schuhs aufweist.

#### Revendications

1. Semelle flexible antidérapante, étanche à l'eau et perméable à l'air, pour chaussure, laquelle semelle est formée d'une plaque (1) en caoutchouc ou analogue comportant une pluralité de trous (2), caractérisée en ce que lesdits trous sont fermés par de petites garnitures en cuir (6) du côté destiné à faire face à l'empeigne (5) de la chaussure.

2. Semelle selon la revendication 1, dans laquelle lesdites garnitures (6) peuvent être collées et/ou fixées dans les trous de la plaque en caoutchouc, lesdits trous (2) présentant un élargissement approprié (3) à proximité du côté de la plaque (1) destiné à faire face à l'empeigne (5) de la chaussure.

3. Chaussure, en particulier chaussure de détente ou chaussure d'enfant, équipée d'une semelle selon la revendication 1 ou 2.

4. Chaussure d'enfant selon la revendication 3, caractérisée en ce que l'empeigne (5) est d'un seul tenant avec une couture latérale oblique (7) et présente des fentes opposées (8) le long des bords (9) d'attache de la chaussure.

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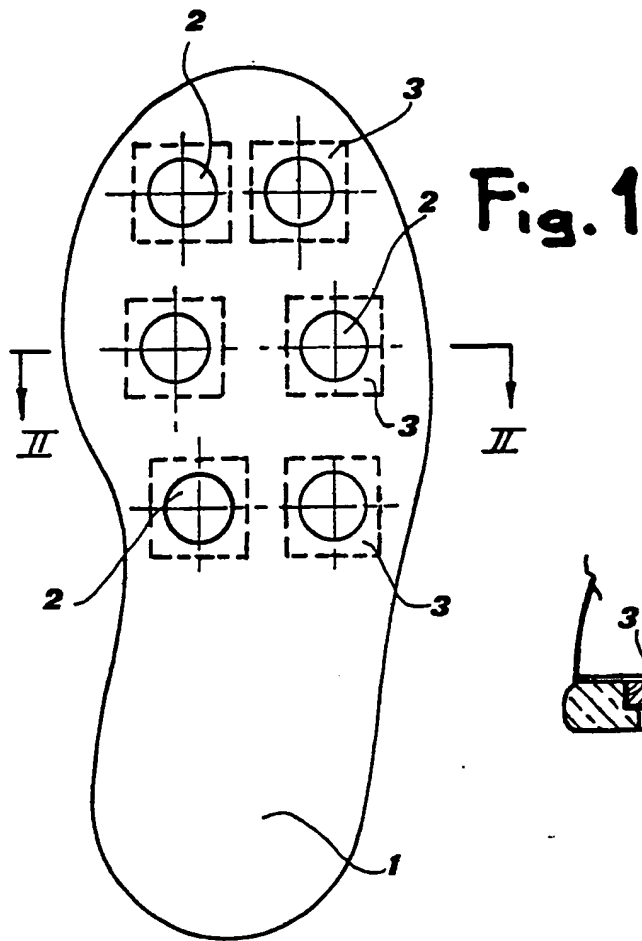


Fig. 1

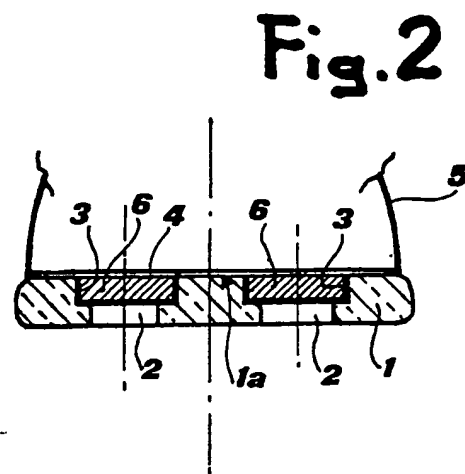


Fig. 2

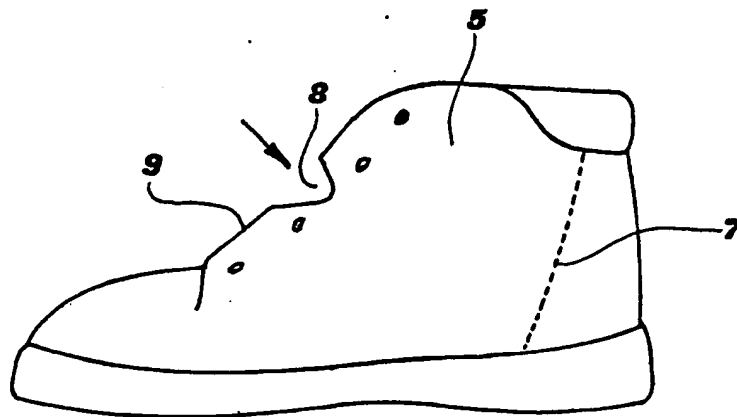


Fig. 3